

Random layer access (JCTVC-N0124/JCT3V-E0108)

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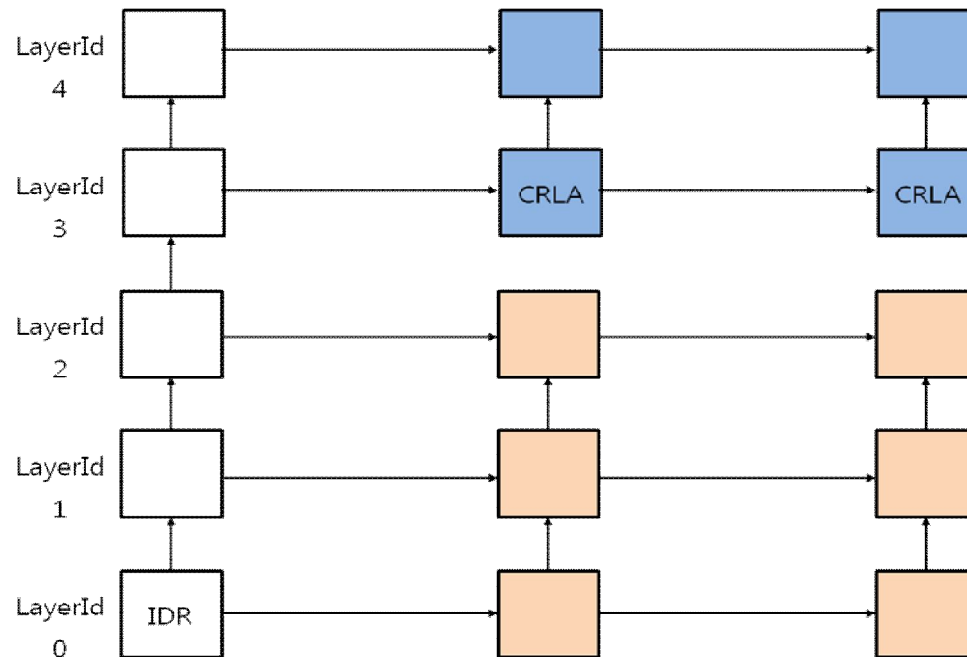
- ❖ Concept of random layer access (RLA)
- ❖ Two RLA pictures are proposed
 - Single random layer access (SRLA) picture
 - Clean random layer access (CRLA) picture

Random layer access

Definition of random layer access:

The random layer access is to access and successfully decode specific pictures with `nuh_layer_id` greater than 0 without decoding pictures in lower layers.

Benefits: Useful for fast accessing of specific pictures in specific layers to enable a trick mode play or a single picture decoding at a mid-point in a bitstream.



Blue pictures can be successfully decoded without decoding yellow pictures

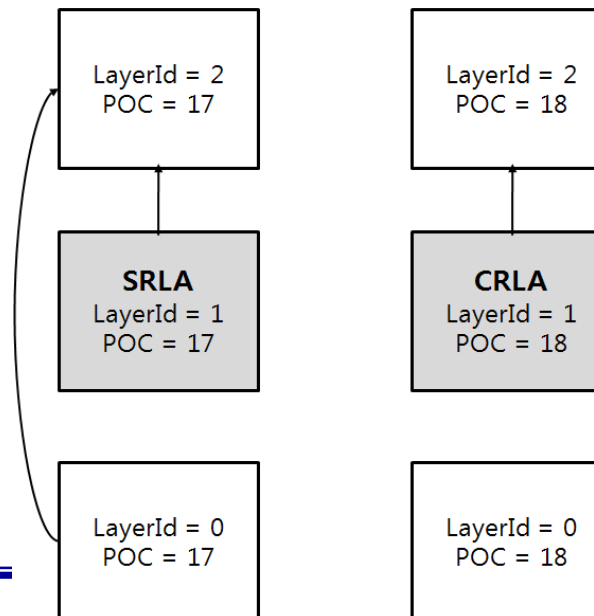
Proposed RLA pictures

Definition of Single random layer access (SRLA) picture:

A picture with nuh_layer_id equal to k has no dependency from a picture with nuh_layer_id less than k within an access unit.

Definition of Clean random layer access (CRLA) picture:

A picture with nuh_layer_id equal to k has no dependency from a picture with nuh_layer_id less than k within an access unit. A picture with nuh_layer_id greater than k in the same access unit has no dependency from a picture with nuh_layer_id less than k within an access unit.



NAL Unit type

nal_unit_type	Name of nal_unit_type	Content of NAL unit and RBSP syntax structure	NAL unit type class
0 1	TRAIL_N TRAIL_R	Coded slice segment of a non-TSA, non-STSA trailing picture slice_segment_layer_rbsp()	VCL
2 3	TSA_N TSA_R	Coded slice segment of a TSA picture slice_segment_layer_rbsp()	VCL
4 5	STSA_N STSA_R	Coded slice segment of an STSA picture slice_segment_layer_rbsp()	VCL
6 7	RADL_N RADL_R	Coded slice segment of a RADL picture slice_segment_layer_rbsp()	VCL
8 9	RASL_N RASL_R	Coded slice segment of a RASL picture slice_segment_layer_rbsp()	VCL
10 12 14	RSV_VCL_N10 RSV_VCL_N12 RSV_VCL_N14	Reserved non-IRAP sub-layer non-reference VCL NAL unit types	VCL
11 13 15	RSV_VCL_R11 RSV_VCL_R13 RSV_VCL_R15	Reserved non-IRAP sub-layer reference VCL NAL unit types	VCL
16 17 18	BLA_W_LP BLA_W_RADL BLA_N_LP	Coded slice segment of a BLA picture slice_segment_layer_rbsp()	VCL
19 20	IDR_W_RADL IDR_N_LP	Coded slice segment of an IDR picture slice_segment_layer_rbsp()	VCL
21	CRA_NUT	Coded slice segment of a CRA picture slice_segment_layer_rbsp()	VCL
22 23	RSV_IRAP_VCL22 RSV_IRAP_VCL23	Reserved IRAP VCL NAL unit types	VCL
24 25	SLRA_NUT_N SLRA_NUT_R	Coded slice segment of a SLRA picture slice_segment_layer_rbsp()	VCL
26 27	CLRA_NUT_N CLRA_NUT_R	Coded slice segment of a CLRA picture slice_segment_layer_rbsp()	VCL
28..31	RSV_VCL24.. RSV_VCL31	Reserved non-IRAP VCL NAL unit types	VCL
32	VPS_NUT	Video parameter set video_parameter_set_rbsp()	non-VCL
33	SPS_NUT	Sequence parameter set seq_parameter_set_rbsp()	non-VCL
34	PPS_NUT	Picture parameter set pic_parameter_set_rbsp()	non-VCL
35	AUD_NUT	Access unit delimiter access_unit_delimiter_rbsp()	non-VCL
36	EOS_NUT	End of sequence end_of_seq_rbsp()	non-VCL
37	EOB_NUT	End of bitstream end_of_bitstream_rbsp()	non-VCL
38	FD_NUT	Filler data filler_data_rbsp()	non-VCL
39 40	PREFIX_SEI_NUT SUFFIX_SEI_NUT	Supplemental enhancement information sei_rbsp()	non-VCL
41..47	RSV_NVCL41.. RSV_NVCL47	Reserved	non-VCL
48..63	UNSPEC48.. UNSPEC63	Unspecified	non-VCL



Thank you !